Article DOI: 10.22032/dbt.39354 Proceedings DOI: 10.22032/dbt.39296

User Interaction with online Information Resources: an Informetrics Approach

[1]Mohammad Hassanzadeh and Emran Ghorbani[2]

[1]hasanzadeh@modares.ac.ir
Associate Professor, Tarbiat Modares University
Room No. 315, Management and Ecenomics School,
Tarbiat Modares University, Tehran, Iran. P.O.Box: 14115-111
Telefax: +98-21-82883678

[2]emranghorbani2014@gmail.com
Librarian, Hamedan Central Public Library
Hamidreza mahmoodi
Tarbiat Modares University
Majid Bashirzadeh
Allameh Tabatabaei University

Abstract

This research strived to investigate and provide answer to these questions: how researchers interact with online information resources when they search for information to meet their information needs. The research also intended to address the issues and problems involved in information retrieval to provide an appropriate solution to their challenges. We have conducted a qualitative approach to the investigation. We carried out interview to collect data. In this way, we chose and interviewed the 15 most informed scholars who normally interact with information and resources.

Results indicated that the use of web-based information resources is dominants among researchers. Researchers were more likely to get the resources they needed from social networks. Consulting the databases and scientific social networks such as Google Scholar was common. Among the online information resources, the use of academic journals, specialized and public libraries website and online resources and personal repositories has been among highly commended resources.

Among the challenges that researchers have had in using information sources was that some of resource titles did not reveal information within them. Researchers were to search for hours and days to find the information they needed. The Web environment, is still far from providing a well-organized information to information seekers and users. Lack of standardized format for searching information in search engines for databases lead researchers to misinformation, and most of interviewees complained about this matter. Results also showed that researchers categorize the retrieved information into four components: 1. Explicit useful information 2. Hidden useful information 3. Explicit inappropriate information 4. Explicit Disturbing information. Findings advise information systems policy makers to adjust their propositions on the information behavior of the new generation researchers and online residents and revise their indexing and collection development guidelines.

Keywords: Online Information Resources, User Interaction, Informetrics, Explicit useful information, Hidden useful information, Explicit inappropriate information, Explicit Disturbing information.

Introduction

The universe of information and especially the Internet environment can be likened to a large store that all researchers and the public can access their information. But the way it works is not so simple because the store is so big that if on the one hand the information is not systematically classified and on the other hand, the majority of users are not familiar with the searching principles and methods. This may result in searching for hours and even for days and reaching in insufficient information, and even coming back with empty hands from this store. The importance of recognizing the information resources in accordance with the needs of the researchers is crucial to meet users' information needs. If researchers are not able to collects the information they need in a satisfactory way, the research they are carrying out, will not be satisfying.

Amid the increasing growth of data, retrieving relevant information is crucial, and online search is one of the most challenging issues on the Internet era. Online search tools try to provide capabilities that extracting the most relevant records for user needs (Haghighi Nobjari, 2014). Machine language (ML) seems to be an appropriate solution, but the natural language is very complex, and machine translation has not reached in a maturity level to help exactly relevant information retrieval (Madanker, Chandak and Chuan, 2016). The importance of understanding the sources of information required in accordance with the wishes Researchers have a special place to meet their information needs . So that if researchers are not able to get the information they need in a satisfactory way, the research they are doing will not be expected.

System-user interaction is one of the most important aspects of information retrieval (Sadooghi et al., 2011). On the one hand, the information organization has to be organized in a completely uniform, standard and transparent manner; on the other hand, users should have the skills to retrieve the information they need. Each information system has a specific basis for analysis, in which the system is based on the interpretation of information and the correspondence between documents and information requests, and thus data retrieval is carried out (Gazni, 2001). Information retrieval systems have also sought to achieve the goal of meeting the demands of users and the documents presented as search results during their history. (Hassanzadeh, 2004).

On the other hand, researchers should be able to determine the amount and type of data and information and classify the data and information they need for their research. As Nielsen and Bjorland believe: Observations that can be considered as research findings for a scientist may be considered as research background for another researcher (Nielsen and Bjorland, 2014).

This study aimed to find out how researchers interact with online information sources when they search for information, and address their information needs. A lot of research on information literacy, information seeking behavior, databases, information skills, database design problems and so on were done.

Dwyer states that students are more inclined to learning, knowledge and thinking about issues with training and frequent research. Also, by designing and conducting exercises that look for a variety of information sources (Quoted from: Babaie and Bigdeli, 2015). Mansourian and Yazdani (2015) also concluded that Kharazmi University graduate students do not use any systematic model for information seeking behavior patterns and are often not familiar with databases and how they are searched.

Hassanzadeh et al. (2016) reported a serious challenges in the information seeking behavior, which is attributed to students' lower skills. They point out that the same low skill makes students look for simple, try and error practice. On the other hand The poker (2008) Recalls the Facebook social network as one of the research tools, and the most important obstacle that makes use of these

tools and other similar tools less widely known is how to use these tools efficiently (quoted in Yari, 2016). The results of the research are vital and Persian (2016) as well Suggesting that the greatest barriers to information seeking by researchers are related to the search for information sources, the use of information resources and search strategies .

On the other hand, Lewandowski (2008) concludes that users should not focus their results on a particular language when searching for information they need. But to improve the results, they have to do their search in all languages. Lynn Robinson (2013) aims to provide an insight into the information behavior of existing models using the library method and the analysis of payment information search and communication models and concluded that although most of the models in the library and information resources focus on information and intelligence users, the existing models have common elements.

Madder and colleagues (2015) also highlighted the most important parts of data retrieval, retrieval of cross-language data, multilingual information retrieval, and machine translation approaches and techniques. Using the questions they asked in a language and asking them to retrieve documents in one or more languages, they found that translation of the machine played an important role in the system. CLIR [10] and MLR [11] There.

Therefore, it can be concluded that an integrated organization with a uniform standard on the one hand as well Understanding the search method, on the other hand, will help researchers find helpful, more intimate, and faster information for researchers. This will help them on the one hand in managing time and on the other hand will lead to higher quality research. As that Russell, Chamberlain and Azzopardi [12] (2018believe that the search for the main task of legal scholars, health information professionals, and other areas has been identified.

Questions

1. What are the best practice of researchers from interacting with online information resources?
2. What is the researchers' perception of online information sources before they enter the search process?
3. What are the researchers' perceptions of online information sources after their acquisition and use?
4. What is the mechanism for improving the efficiency of online information resources from the perspective of researchers?
5. What are the challenges of online information resources for researchers?
6. What is the difference between the sources of online information and non-online information resources and how remarkable is this distinction?
7. What are the distinctive features of online information resources with non-online sources of information

Research method

This research is a fundamental research based on the Strauss and Corbin grounded theory. In this way, we chose and interviewed the 15 high-ranked scholars who naturally have more interaction with information resources.

Interview questions were drawn from the review of the research, which had the most relevancy with this research. Validity and reliability of the questions were also examined to improve the quality of results.

Findings

A) Demographic and descriptive information

Age of interviewees ranged from 26 to 40 Years, out of 15 persons, 5 was female and 11 male. Seven persons have masters Degree and 8 with PhD. Eight researchers were from information science, and 7 from other fields. The average web surfing time by these researchers was 5 hours per day and for scientific information.

Google, Google Scholar and Microsoft Academic were top search engines they had visited. Among the databases, Science Direct, Doaj, Web of science, Scopus were the mostly visited and Emerald the least used databases.

The use of synonyms, subject terms, time limits, searches based on resource formats and authors' names, and the identification of specialized databases have been among the most widely used strategies by researchers. The researchers mostly were intended to retrieve scientific papers in pdf format. To a large extent they were to use the search formulation. The web environment, library, and other researchers were the paths and resources that the researchers examined to find information through it. The level of familiarity of researchers with scientific social networks was good and LinkedIn, Research Gate, and Academia were among popular scientific social networks . The satisfaction about the organization of information on the Web was acceptable, but researchers suggested that precise categorization of information on the web environments could result in more accurate results. It was also suggested to create a specialized federated search engine that can search information sources from all databases against user queries.

B) Qualitative findings

Question: What are the best practices of researchers on interacting with online information resources?

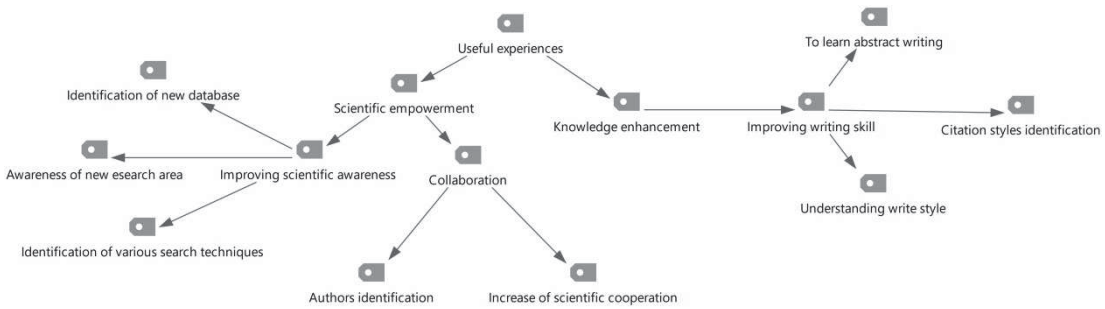

Figure 1. Best practices of the researchers

The results indicate that researchers consider online information sources as a tool for their knowledge development. They are due to meet different research techniques, aware of the new research fields and meet new databases, to strengthen their scientific consciousness. In this regard, one researcher responds to the question "What are the useful experiences of researchers with interacting with online information resources?"
Replied: "Find new management fields - Find new researcher colleagues - Increasing search skills and research methods." Online information resources are a good platform for collaborative effort. Individuals are becoming familiar with other authors through the use of online information resources, and subsequently expanding their collaborative work.
As stated above, online information resources bring knowledge to individuals and users. The researcher strengthens his writing skills while seeking and using information resources. In other words, getting acquainted with how to cite, write, and abstract is a ground for strengthening the researcher's writing skills.

Question: What are the researchers' perceptions of online information sources before they enter the search process?

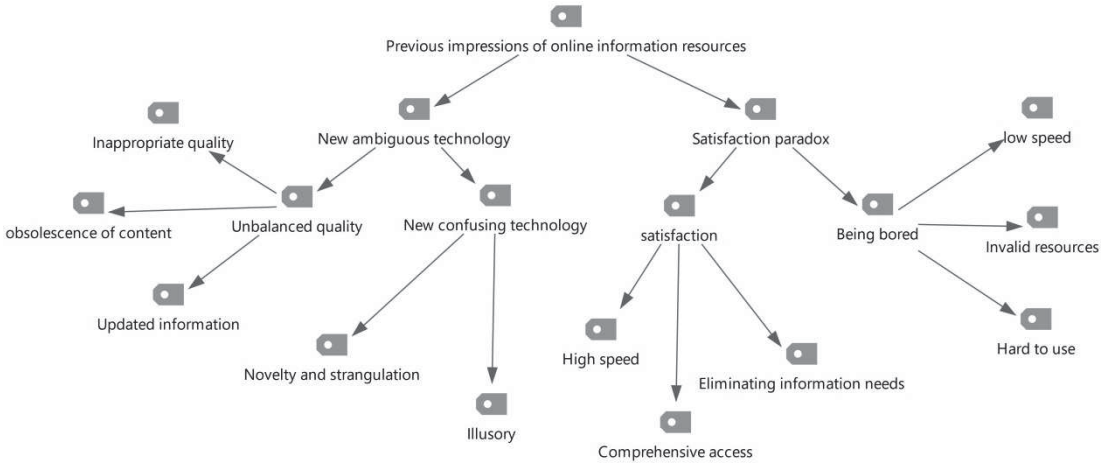

Figure 2. Researcher's impression before using online information resources

Most scholars use it as a technology challenge before they use online information resources. From the researchers' point of view, the aging of the content and, sometimes, the inadequate quality of information resources, the provision of up-to-date information along with updated resources indicates the unbalanced quality of online information resources. It seems that the use of information resources brings satisfaction to users. However, during the interviews, there is a kind of panic. The contradiction between the satisfaction and the boredom of information resources is the paradox of satisfaction. Comprehensive access, high access speeds, and high-quality access to the information are satisfaction factors for researchers. In some cases, there are some sources of invalid and difficult online resources for volatile researchers.
Question: What are the researchers' perceptions of online information sources after their access and use?

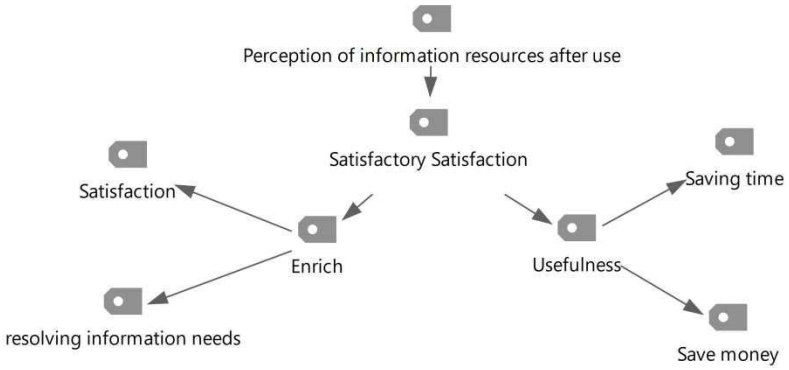

Figure 3. Researcher's impression after using information sources

The researchers stated that on the one hand, they could access online resources at the very least in the shortest possible time and at a minimal cost, and in many cases completely free of charge. On the other hand, they believed that online information resources largely solved their information needs and, therefore, had a great deal of satisfaction with these resources. The foregoing points out that online information sources seem to have some kind of usefulness and optimism.

Question: What is the mechanism for improving the efficiency of online information resources from the perspective of researchers?

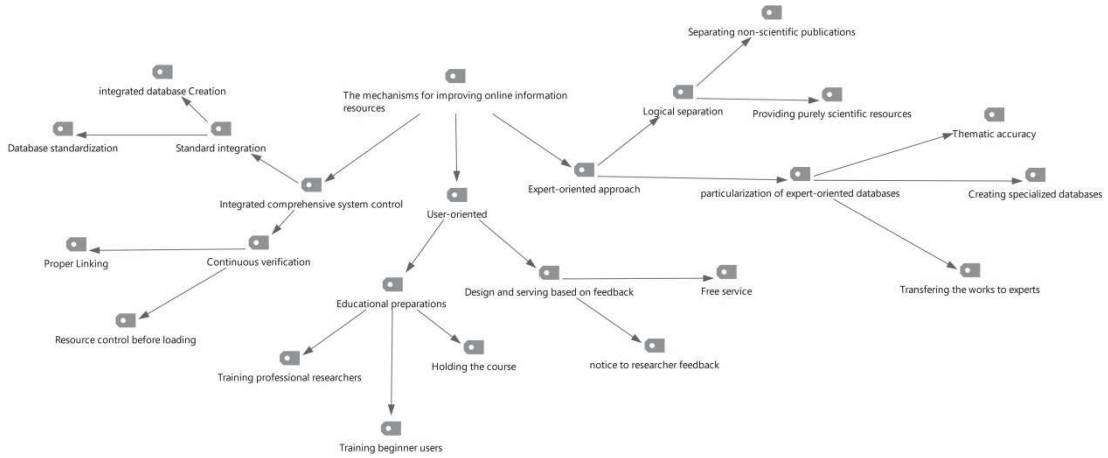

Figure 4. The mechanisms for improving online information resources

Researchers suggested expertise in single-minded military control, and user-centered information retrieval systems to increase productivity and effectiveness of online information sources. They proposed educational tools that include training beginner users, educating researchers, and holding classes and workshops. They also proposed designing information retrieval systems based on feedback from researchers and demanding the provision of free research services.

They asked specialists to provide information resources that would be devoted to the logical separation of resources by separating non-scientific publications and providing scientifically valid sources. They also called for databases to be expert-focused and resource-based, so that resources are divided into very small topics at bases to make job retrieval easier. Also, specialist databases in all disciplines were emphasized by subject specialists. The researchers called for a single standard definition for all databases, including the establishment of an integrated database of information and standardization of databases.

Question: What are the challenges of online information resources for researchers?

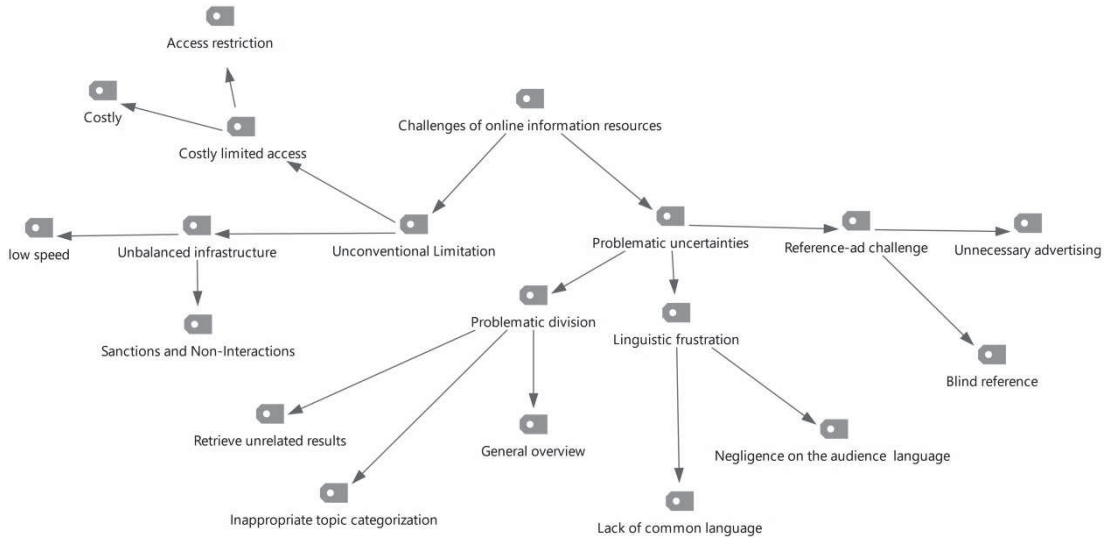

Figure 5. Online Information Resources Challenges

It seems that most researchers encounter problems when using online information resources that are not pleasant to them. The results suggest that working with online information sources sometimes leads to disappointment. Disappointment which comes from unconventional limitation and pervasive ambiguity. Unconventional constraints, unbalanced infrastructure and limited access to cost. In other words, an unbalanced infrastructure and limited access to the cost of a kind of unconventional constraint make it into mind. Access restrictions and the cost of some information resources fall under the category of cost-effective access, and the low speed of the Internet and the lack of strong international interactions are also considered to be unbalanced infrastructures. All of the aforementioned articles have been described in the description and explanation of the unconventional limitations. But the other piece of disappointment is ambiguity. The category underlying the challenge of referral - advertising, linguistic and linguistic distortion .The challenge of referrals - Advertising in some databases, including unnecessary advertisements and blind referrals, was something that was considered to be very annoying for users. Among the other challenges mentioned by the researchers was the lack of language, among which the lack of a common language and lack of attention to the language of the users was very high. False drop was one of the major issues that confused researchers and the retrieval of irrelevant results, inappropriate topic categorization, and general overview were the most important ones mentioned in this area.

Question: What can be categorized online resources from the perspective of researchers?

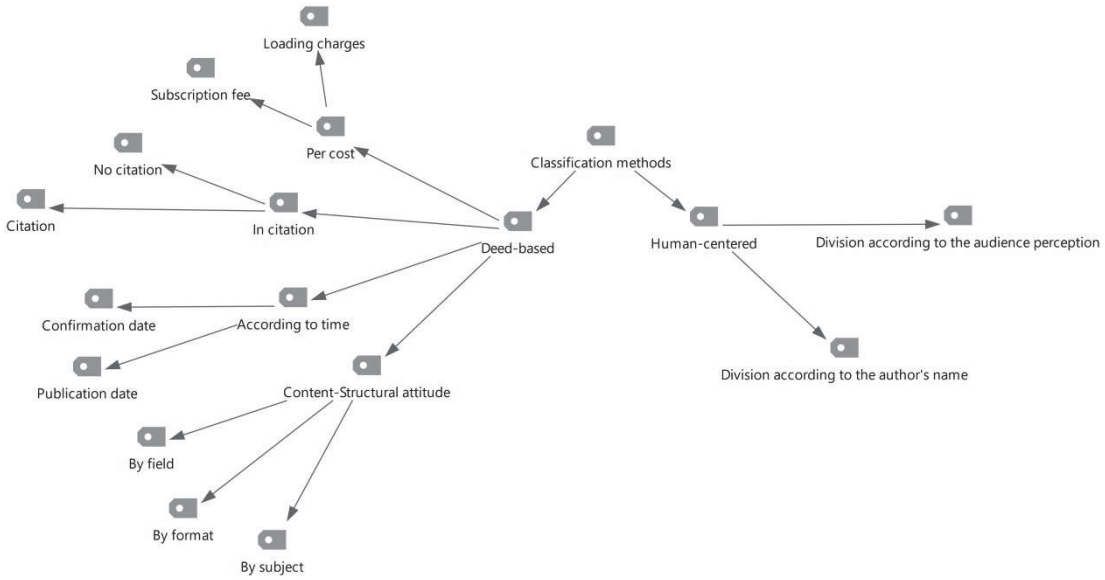

Figure 6. Information resource categorization

The resource categorization by author's name and perceived audience, which is based on the researcher-centered nature of the information resources, was the point that the researchers were considering. The breakdown by the time of approval and publication of the articles was another proposal proposed by the researchers. Citation-oriented categorization, i.e. categorization in terms of articles with cited and non-cited articles, also appears in the interviews. Categorization according to loading and subscription costs is also based on semantic convergence and nature they were placed below the cost center axis.

Question: What is the difference between the sources of online information and non-online information resources and how remarkable is this distinction?

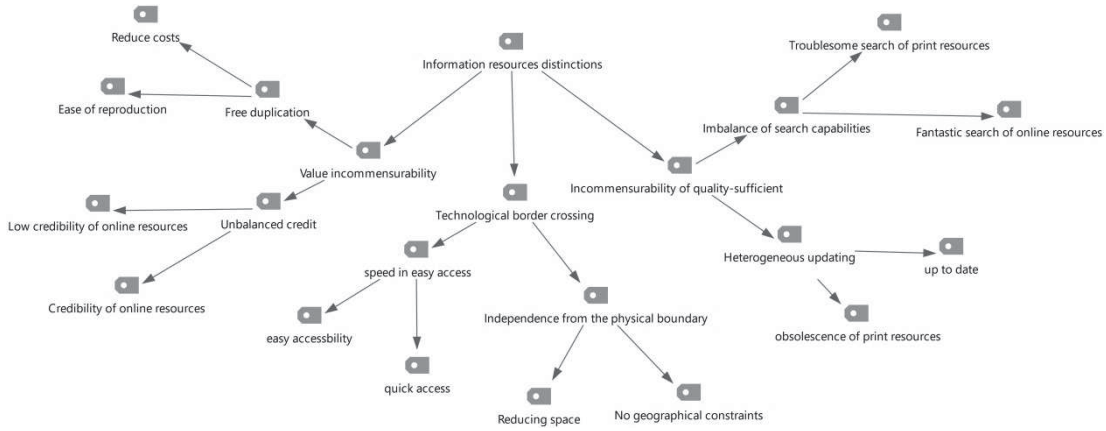

Figure 7. difference between information sources

The distinction between online sources of information and non-online sources can be sought at the cutting edge of technology and credit unequal - capability. Researchers consider ease and speed of access to these resources very satisfying. They are Maintain physical independence from the border directly to eliminate the constraints of location and space reduction are concerned that the distinction wedge with non-online online information resources is considered.

Researchers would appreciate the possibility of free downloading, given the cost and ease of replicating online information sources. They referred to interviewers with high reputation for print resources and low credit ratings for some online sources. Researchers also acknowledged that it was difficult to search for print resources and made it easy to search for online information sources. Also, the aging of print sources was considered a new defect and assumed the availability of online information sources as an advantage for these resources.

Conclusion

The challenges that researchers have had in using information sources was that some of the titles of papers and other research papers did not reveal information within them . Researchers were forced to search for hours and days to find the information they needed. The world of information, especially in the Web environment, did not have a good idea to organize information. Some profiteers made free information in cash from elsewhere. There was no standardized format for searching information in search engines for databases, and the most complaints from researchers were the same.

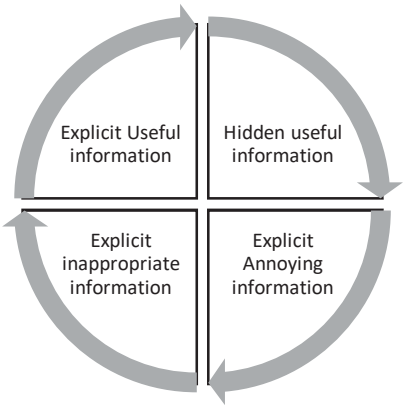

Figure 8. Four main categories of information

Explicit useful information can be easily seen and used by researchers and the general public, and will not be a major effort. The researcher may find this information sufficiently adequate and this fact my prevent them struggling more.

Hidden information is useful to most scholars, especially ordinary people, because they are not familiar with the principles of professional and advanced search, or that the title of the article is written so that many people think that they do not cover their information needs. Or, the title is not an article

Explicit inappropriate information is unprofitable, which may be thought to be the most annoying type of information for a researcher. That is, information that does not need it, but the researcher has to study them, so that he loses something. The classification of information as well as the presence of supervisors in the web environment can, to a large extent, overcome this problem to further monitor the flow of information.

Annoyingly revealing information is also information that the investigator reviews, but there is no useful information in them. In this case, the time spent by the researcher is lost, and on the other hand, he may lose a lot of useful information. For example, a scholar may want to look for information about Goethe's biography when he finds books about his subject, but after studying, he does not find any useful information.

References

Babaei, Kobra; Bigdeli, Zahid (1394). The need to know and its impact on participatory information seeking behavior of undergraduate students of the Faculty of Psychology and Educational Sciences of Allameh Tabatabai University. Human interaction and information, 2 (1), 12-20.

Bian, GW, & Chen, HH (1998). Integrating query translation and document translation in a cross-language information retrieval system. In the Conference of the Association for Machine Translation in the Americas (pp. 250-265). Springer, Berlin, Heidelberg. The

Gazni, Ali (1380). Organize information in information retrieval systems. Library and Information Science, 6 (1), 70-95.

Good work, Maliha, vital, Zuhair Vfarsy Azam. (2016). The study of barriers to information seeking from the viewpoint of faculty members of Islamic Azad University, Shiraz Branch, based on the development of Derwin's theory of meaning (theory of work). Research a Librarian, 6 (2), 61-79.

Haghighi Noobjari, Nowruz, Zahra, (2014), Information Recovery, National Conference on Engineering Sciences, New Ideas (8) , Tonekabon, Tonekabon's Elderly Higher Education Institute,

Hassanzadeh, Mohammad (2004). Effect of information retrieval models on relevancy. Journal of Informatics, 2 (1), 64-89.

hassanzadeh, Mohammad; Hasanzadeh, Reza; Safai, Zahra; Ghorbani; Omran; Dastjerdi Ali Akbar and Parvin, Somayeh (1395) . The pattern of accessing and utilizing electronic information among graduate students. Human- information interaction, 3 (1), 1-19.

Help, Shiva (1395). Social media in public libraries: Understanding uses and barriers and usage problems. Human interaction and information, 3 (1), 79-95.

Lewandowski, D. (2008). Problems with the use of web search engines to find results in foreign languages. Online information review, 32 (5), 668-672.

Madankar, M., Chandak, MB, & Chavhan, N. (2016). Information retrieval system and machine translation: a review. Procedia Computer Science, 78, 845-850.

Mansourian, Yazdan and Sangari, Mahmoud (2011). The study of the information seeking behavior of graduate students of Kharazmi students in dissertation development, human interaction and information, 2 (2), 1-7.

Nielsen, Jørn, H. and Hjørland, B., (2014). Curating research data: the potential roles of libraries and information professionals. Journal of Documentation, 70 (2), pp.221-240.

Nowkarizi, Mohsen; Kashi, Zahra and Sanat Joo, Azam. (2017). the role of librarians, Close Directory amount Svadatlaaty students education Supplementary UniversityFerdowsi Mshhddrka hsh Aztrabatla finding them. Library and Information Science, 20 (4), 30-55.

Robson, A., & Robinson, L. (2013). Building on the models of information behavior: linking information seeking and communication. Journal of documentation, 69 (2), 169-193.

Robson, A., & Robinson, L. (2013). Building on the models of information behavior: linking information seeking and communication. Journal of documentation, 69 (2), 169-193. The

Russell-Rose, T., Chamberlain, J., & Azzopardi, L. (2018). Information retrieval in the workplace: A comparison of professional search practices. Information Processing & Management, 54 (6), 1042-1057.

Sadoughi, Farahnaz, but Rahai, Ali; Vakili Mofrad, Hussein; Hafiz MohammadHassanzadeh and Bourgi, Hamid (2011). Interacting in information retrieval and evolution of its models. Journal of Science and Technology Research Institute of Iran, 159-1550.

Vanopstal, K., Buysschaert, J., Laureys G., & Vander Stichele, R. (2013). Lost in PubMed. Factors influencing the success of medical information retrieval. Expert Systems with Applications, 40 (10), 4106-4114.